REMARKS

Claim 1 is amended to more particularly point out that the electrical component in Applicant's circuit assembly comprises a first terminal extending on one side and a second terminal extending on the opposite side, see terminals 22 and 24 in Fig. 3, and page 6, lines 19-22. Also, the claim is amended to clarify that each terminal includes the portions as originally recited, that is, a downward portion 22b, 24b, page 7, lines 2-3, and 16-18; a mounting portion 22c, 24c, page 7, lines 5-8; and a tip portion 22d, 24d, page 7, line12-13. The claim is further amended to call for first and second bores receiving the tip portions of the corresponding terminals, and first and second electrically conductive pads bonded to the mounting portions of the corresponding terminals, which bores and conductive pads are disposed outboard from the component, see Fig. 4, and page 8, lines 11-13 and 16-18, and page 9, beginning at line 10.

Claims 11-14 are amended to clarify that the recited feature applies to each terminal in the independent claim 8. The dependency of claim 11 is corrected.

Claim Rejection based upon Kanetake

Claims 8, and 11-15 were rejected under 35 U.S.C. § 102(b) as unpatentable over United States Patent No. 5,446,623, issued to Kanetake in 1995.

Kanetake describes a capacitor 10 mounted to a printed circuit board A, see col. 3, lines 36-37, and Fig. 4. The capacitor is adapted to be mounted to pads directly beneath

the component. Accordingly, the contact ends 12a and 13a are bent inward. Also, the lead 12 includes a projection that is inserted into hole A3 in the board, col. 3, lines 41-44. By design, the projection extends from the downward portion of the lead, and from only one lead, to prevent the capacitor from being mounted with the leads reversed, col. 3, lines 48-57. In contrast, in Applicant's terminal assembly, the component includes multiple terminals, each having a tip portion received in a bore and a mounting portion bonded to a contact pad. Whereas Kanetake provides the projection from one lead of two to distinguish anode from cathode, Applicant provides a bent configuration for a multiple terminals, so that, for a large number of terminals, the mounting portions may be readily located relative to the corresponding conductive pads. Moreover, in Applicant's terminals, the mounting portion is bent outward, as opposed to the Kanetake inward bend, thereby facilitating insertion and location when large numbers of terminals are involved. The outward configuration also facilitates the bending operation in providing a planar orientation of the component, see page 9, lines 16-21. Kanetake does not show multiple terminals having tips, provides mounting sections beneath the component, and locates the tip adjacent the downward section. Thus, Kanetake does not anticipate or even suggest Applicant's invention.

Claim 8 is directed to Applicant's circuit assembly that includes, as main elements, an electrical component and a circuit board. The electrical component includes first and second electrical terminals, each having a downward portion, a mounting portion and a tip portion. Whereas Kanetake shows a lead with the contact bent inward to bond

to pads underneath the component, and the projection extending from the section adjacent the component, the claim calls out that the mounting portion extends outward to bond to an outboard conductive pad, and the tip portion spaced apart from the downward portion to be received in an outboard bore. Whereas Kanetake simply seeks to match the anode lead to the anode pad, Applicant's assembly allows a large number of terminals to be reliably positioned relative to the pads and to support the component in a desired planar orientation. Thus, the lead configuration in Kanetake is readily distinguished from Applicant's assembly in claim 8.

Claims 11-15 are dependent from claim 8 and include additional features preferred in the practice of Applicant's invention. Since Kanetake does not show Applicant's assembly in claim 8, it follows that the dependent claims are also patentable over Kanetake.

Accordingly, it is respectfully requested that the rejection of claims 8 and 11-15 based upon Kanetake be reconsidered and withdrawn, and that the claims be allowed.

Claim Rejection based upon Fanning

Claims 8 and 11-15 were rejected under 35 U.S.C. § 102(b) as unpatentable over United States Patent No. 4,541,034, issued to Fanning in 1985.

Fanning describes a capacitor 20 mounted to a circuit board 28 by terminals 10,

see Fig. 9. The terminal comprises an upper portion 12 and a lower portion 14 connected by an intermediate portion, unnumbered. The lower portion extends through a thru-hole 26 in the board. The terminal is connected to a pad at the end region 14d on the board opposite the component. Moreover, the lower portion 14 includes stops 14b and 14c that position the component relative to the proximate surface of the board. As a result, the unnumbered intermediate portion of the terminal is suspended above and apart from the circuit board. In contrast, Applicant's terminal includes a mounting portion that is bonded to the contact pad. Fanning specifically designs a terminal with features to suspend the intermediate portion apart from the board, and not to be bonded to the board. Thus, Fanning does not teach or suggest Applicant's invention.

Claim 8 calls for first and second terminals, wherein each terminal includes a mounting portion that is between the downward portion and the tip portion. The mounting portion is bonded to the contact pad. Fanning designs a terminal to bond an end portion that is bent or clinched over the side that is opposite the component, and to space the corresponding intermediate portion apart from the board. Thus, Fanning does not anticipate or even suggest Applicant's circuit assembly in claim 8, or in claims 11-15 dependent thereon.

Accordingly, it is respectfully requested that the rejection of claims 8 and 11-15 based upon Fanning be reconsidered and withdrawn, and that the claims be allowed.

Claim Rejection based upon Huynh et al.

Claims 8 and 11-15 were rejected under 35 U.S.C. § 102(b) as unpatentable over United States Patent No. 5,726,862, issued to Huynh et al. in 1998.

Huynh et al. discloses an electrical component, which is a LED or transistor, col. 3, lines 39-41, that includes two leads 14 and 16 inserted into bores in the circuit board. In most embodiments, Huynh et al. does not provide a portion of the lead bent and bonded to a pad on the surface, key features of Applicant' terminals. The rejection points to the embodiment in Fig. 8 as including portions bonded to conductor pads 56. In the embodiment in Fig. 8, the leads are bent with a zigzag so that the bent portions and the conductor pads are disposed underneath the component. In contrast, the terminals in Applicant' assembly comprise a mounting portion that extends outward form the downward portion and is bonded to outboard pads. Moreover, Applicant' assembly includes terminals extending from opposite sides of the electrical component, so that the mounting portions are extending in opposite directions. As a result, particularly for components that include numerous terminals, the component may be readily manufactured and mounted with a desired spacing and a desired orientation relative to the board, i.e., with a surface parallel to the board. Huynh et al. discloses leads that are parallelly bent, presumably to facilitate the bending operation, which accomplishes the intended mounting over the conductive pads, but is susceptible to displacement that affects the spacing and orientation. Thus, Huynh et al. does not teach or suggest Applicant's invention.

Claim 8 calls for first and second terminals located on opposite sides of the electrical component and comprising mounting portions that extend outward from the downward portions. Moreover, the bores and conductive pads are disposed outboard relative to the component. In Huynh et al., the conductor pads and bores are located directly underneath the component. Moreover, the leads in Huynh et al. are bent in parallel and, because of the angled sections; do not extend outward from the component. Huynh et al. does not show leads on opposite sides of the component that extend outward and are bonded to outboard pads, and thus does not teach or suggest Applicant's circuit assembly in claim 8, or in dependent claims 11-15.

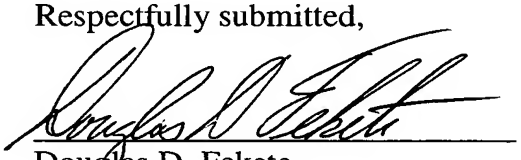
Accordingly, it is respectfully requested that the rejection of claims 8 and 11-15 based upon Huynh et al. be reconsidered and withdrawn, and that the claims be allowed.

Conclusion

It is believed, in view of the amendments and remarks herein, that all grounds of rejection of the claims have been addressed and overcome, and that all claims are in condition for allowance. If it would further prosecution of the application, the Examiner is urged to contact the undersigned at the phone number provided.

The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 50-0831.

Respectfully submitted,



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